REMARKS

35 USC §102103

The presently pending claims stand rejected under §102 and §103 as anticipated by or obvious over the Nelson and Newman references.

Original claim 3 is allowable because each of the prior art references of record fails to disclose regular spacing of the fins as claimed.

Amended claim 29 and new claims 31 – 36 each structurally recite patentable distinctions over the references of record.

With regard to new claims 35 and 38, as well as previous claim 7, applicant notes that in the Newman design, coils are arranged axially and the outside fluid (air) can only flow in an axial direction in the long narrow ducts formed by the fins and the inner and outer casings. In Newman's design, air flows over the first coil, removes some heat, then flows over the next loop, removes some more heat (but not as much as the first one, since it is warmer) and then on the third, and so on and very soon its ability to remove heat will be substantially reduced, as it will be too hot. The air also will experience a very large pressure drop.

To further illustrate the difference between Newman and the applicant's designs, if hypothetically all the coils in the applicant's design (Fig. 1) are cut along one of the fins and the tubes are straightened and their open ends joined together by hairpins, one will end up with a design similar to Figure 2, which is a conventional heat exchanger used in many systems including air conditioners. If the same is done with the Newman design, one will end up with the design shown in Figure 3, where air can flow in the ducts in the vertical direction and addition of a fan or blower will not help much.

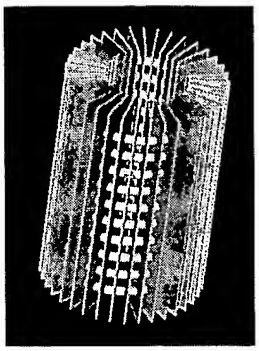

Fig. 1

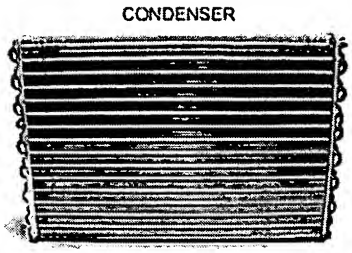

Fig. 2

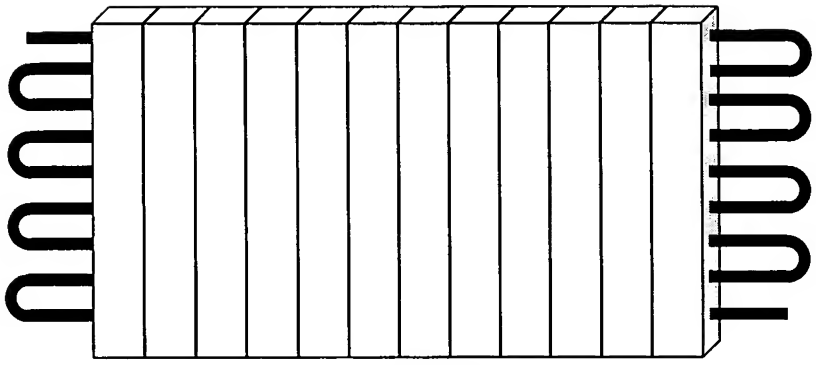

Fig. 3

The deficiency of Newman's design can be further illustrated by turning the heat exchanger of Fig. 3 by 90 degrees so that the "fins" are horizontal. In that case air will not flow and very little heat will be transferred. Turning the applicant's design by 90 degrees will have no impact on its performance. It must be clear that Newman's design is totally different from the applicant's, and not a practical one. It will not work, and that is perhaps why no design looking like it exists on the market after 70 years.

The present amendments to claims 29 and new claims 31 and 35 are supported at page 7, lines 1-5 and at figure 2d.

Conclusion

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,

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